

Attachment I
Integration Plan

Attachment I

Integration Plan for the National Environmental Policy Act and the Comprehensive Environmental Response, Compensation, and Liability Act for the Organic Contamination in the Vadose Zone Operable Unit (OU 7-08) Remedial Investigation/Feasibility Study

ATTACHMENT I

Contents

1. Environmental Checklist and Categorical Exclusion for OCVZ Sampling Activities	I-4
2. Draft Environmental Checklist and Draft Categorical Exclusion for OCVZ VVE Treatability Study	I-11
3. Integration Plan	I-20

1. Environmental Checklist and Categorical Exclusion for OCVZ Sampling Activities

U. S. DEPARTMENT OF ENERGY
IDAHO OPERATIONS OFFICE
ENVIRONMENTAL CHECKLIST

P. /Activity Title: Sampling for Characterization of Organic Contamination in the Vadose Zone at the SDA, OU 7-98		Project/Activity Number:	
Contractor: EG&G Idaho, Inc.		Organization: Environmental Restoration Program	
		Date: November 22, 1991	
Contractor Project Manager Name: G. E. Matthern		Signature: <i>G. E. Matthern</i>	
DOE-ID Project Manager Name: W. N. Sato			

BRIEF PROJECT/ACTIVITY DESCRIPTION: Include category (new project/activity, modification, or direct replacement), purpose, need, location (provide figure or map if appropriate), construction requirements, schedule, operational processes, control equipment, cost, etc. Use additional pages and attachments as necessary.

SEE ATTACHMENT A.

ENVIRONMENTAL CONCERNS: Will the project/activity, either during construction or operation, result in changes and/or disturbances to the following entities? Provide brief explanations where appropriate. If the proposed project/activity represents a commitment to a course of action that would ultimately require a positive response to one or more of the questions below, identify question numbers and provide explanation.

	YES	NO		YES	NO
1. Missions	X		10. Water use/diversion		X
2. Liquid effluents		X	11. Drinking water system		X
3. Solid waste	X		12. Sewage system		X
4. Radioactive waste/soil		X	13. Clearing or excavation		X
5. Hazardous waste *	X		14. Activity outside area fence/wildlife.....		X
6. Mixed waste (rad & haz) *		X	15. Archaeological/cultural resources		X
7. Chemical storage/use	X		16. Noise levels		X
8. Petroleum storage/use		X	17. Radiation exposures		X
9. Asbestos waste		X	18. Pesticide use		X

Explanation and qualification of specific responses of "yes": If "yes" and (*), explain waste minimization effort to be taken. Use additional pages as necessary.

Number	Explanation
	SEE ATTACHMENT B.

C. CONTRACTOR ENVIRONMENTAL ORGANIZATION REVIEW:	Signature:
--	------------

- Does the proposed project/activity require any state or federal permits/notifications? ___Yes ___No
Explain:
- Does the proposed project/activity impact a RCRA-regulated unit? ___Yes ___No
Explain:
- For environmental concerns marked "yes" in Section B, is it immediately clear and obvious that they have no potential to create significant environmental impact even when combined with ongoing project impacts? ___Yes ___No
- _____ MTF unwarranted (Categorical Exclusion).
_____ Memorandum-to-File (MTF) warranted, clearly insignificant impact.
_____ Action Description Memorandum (ADM) required.

**ATTACHMENT A
VAPOR VACUUM EXTRACTION TREATABILITY TEST
ENVIRONMENTAL CHECKLIST**

BRIEF PROJECT/ACTIVITY DESCRIPTION

The proposed action is a treatability study under the auspices of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The proposed action would be in accordance with the requirements of the Federal Facility Agreement and Consent Order (FFA/CO) and Action Plan, which guides INEL Assessment and Cleanup activities under CERCLA.

The proposed action is to restart the Vapor Vacuum Extraction unit. The purpose of the restart would be to further test and refine the technology for applicability as a potential remediation for the Vadose Zone underlying the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory. The Vapor Vacuum Extraction System was tested for two weeks between November 3 and November 14, 1989, and for eighteen weeks from April 14 to August 13, 1990, to test the system design. Results from the two tests showed that the system was effective in removing volatile organic compounds from the Vadose Zone. Radionuclides were not released to the atmosphere, nor were volatile organic compounds released in excess of regulatory limits.

The proposed treatability study would include measuring horizontal transport time of injected tracer gases for determining the radius of influence of the vacuum applied, evaluating effects of seasonal weather, determining the flow profile within the Vadose Zone, measuring extraction rates from soil gas surrounding the contaminant source, and varying the rates of extraction. Tracer gases used for the tests would not be hazardous; hazardous gases would not be used in the study. Data would be used for refining the computer model depicting the dispersion of the contaminant plume, then using the computer model for testing the potential for Vapor Vacuum Extraction in remediation. Methods of enhancing extraction of vapors, (e.g., heating the subsurface, enhancing air movement in the subsurface, and so forth) may also be studied. Permits for treatability studies will not be required from the Environmental Protection Agency or State governments [40 CFR 300.400 (e)]. However, close cooperation with the State of Idaho would be maintained during the study.

Additional wells would be drilled to enhance the extraction process of the Vapor Vacuum Extraction system. The wells would be drilled on the periphery of waste pits and trenches, avoiding penetration of wastes disposed in the Subsurface Disposal Area, and would not penetrate the 240-foot interbed. Purposes of the holes would be for monitoring volatile organic compounds at shallow depths, supplying air to carry volatile organic compounds to the extraction well, and testing the efficacy of vapor vacuum extraction at various depths. Well drilling and installation would be conducted to avoid cross-contamination or the introduction of contaminated material into the vadose zone.

The majority of the testing and characterizing of the efficacy of vapor vacuum extraction would be done in existing holes. All holes drilled for the test will be left in place and used for monitoring, air supply, and extraction purposes.

During the test, engineering controls would be used to prevent the release of contaminated materials to the environment. All activities of the proposed action would take place within the Subsurface Disposal Area, an area already disturbed by past and present disposal activities. The proposed action

is not connected to other actions with potential significant impacts, is not related to other proposed actions with cumulative significant impacts, and is not precluded by 40 CFR 1506.1, Council on Environmental Quality Regulations. The proposed action would support remedial investigation/feasibility studies under CERCLA, would not unduly limit the choice of reasonable remedial alternatives, and would not cause the uncontrolled movement of hazardous substances, pollutants, contaminants, CERCLA-excluded petroleum or natural gas products, or non-native organisms.

**ATTACHMENT B
VAPOR VACUUM EXTRACTION TREATABILITY TEST
ENVIRONMENTAL CHECKLIST**

B. ENVIRONMENTAL CONCERNS

1. **Air Emissions** - Under a worst case scenario, if extracted vapors were exhausted directly to the atmosphere, concentrations of contaminants would be below regulatory concern. However, the air extracted by the process would be filtered through a system prefilter, then through a High Efficiency Particulate Air filter, and then through two activated carbon beds. Connected to the carbon beds would be an oxidation unit to destroy the volatile organic compounds extracted from the Vadose Zone, thereby regenerating the carbon beds continuously. If further regeneration would be required, the carbon beds would be regenerated offsite of INEL at a facility permitted by the Environmental Protection Agency. Regenerated filters would be returned for reuse.

Extraction of radionuclides is not anticipated, but if that occurs, the High Efficiency Particulate Air filter is designed to trap those particles. The system would be designed to alarm and automatically shut down should breakthrough of the carbon beds occur and concentrations of carbon tetrachloride exceed regulatory limits. Since no man-made radionuclides or toxic pollutant emissions are anticipated, no permits would be required. However, close cooperation with the State of Idaho and the Environmental Protection Agency will be maintained throughout the proposed treatability study.

5. **Hazardous waste** - Volatile organic compounds adsorbed onto the carbon filter beds will be handled as a hazardous waste. The carbon beds would be regenerated either on-site or off-site of the INEL. It is anticipated that the oxidation unit will destroy most, if not all, of the volatile organic compounds extracted from the Vadose Zone, thereby reducing costs and minimizing process waste. If the carbon beds require further regeneration, the beds would be regenerated off-site of the INEL at a facility permitted by the Environmental Protection Agency for such treatment and regeneration.

**CATEGORICAL EXCLUSION DETERMINATION
FOR THE VAPOR VACUUM EXTRACTION TREATABILITY STUDY
AT THE RADIOACTIVE WASTE MANAGEMENT COMPLEX
IDAHO NATIONAL ENGINEERING LABORATORY (INEL)
U.S. DOE IDAHO FIELD OFFICE**

Proposed Action: Vapor Vacuum Extraction Treatability Study

Location of the Proposed Action: Subsurface Disposal Area (SDA) of the
Radioactive Waste Management Complex, INEL, Idaho

Description of the Proposed Action:

The proposed action is a treatability study under the auspices of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The proposed action would be in accordance with the requirements of the Federal Facility Agreement and Consent Order (FFA/CO) and Action Plan, which guides INEL Assessment and Cleanup activities under CERCLA.

The proposed action would be conducted by restarting the Vapor Vacuum Extraction unit already in place at the SDA. The purpose of the restart would be to further test and refine the technology for applicability as a potential remediation for the Vadose Zone underlying the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory. The Vapor Vacuum Extraction System was tested for two weeks between November 3 and November 14, 1989, and for eighteen weeks from April 14 to August 13, 1990, to test the system design. Results from the two tests showed that the system was effective in removing volatile organic compounds from the Vadose Zone. Radionuclides were not released to the atmosphere, nor were volatile organic compounds released in excess of regulatory limits.

The proposed treatability study would include measuring horizontal transport time of injected tracer gases for determining the radius of influence of the vacuum applied, evaluating effects of seasonal weather, determining the flow profile within the Vadose Zone, measuring extraction rates from soil gas surrounding the contaminant source, and varying the rates of extraction. Tracer gases used for the tests would not be hazardous; hazardous gases would not be used in the study. Data would be used for refining the computer model depicting the dispersion of the contaminant plume, then using the computer code for testing the potential for Vapor Vacuum Extraction in remediation. Methods of enhancing extraction of vapors, (e.g., heating the subsurface, enhancing air movement in the subsurface, and so forth) may also be studied. A permit-to-construct or an exemption for treatability studies would be applied for from the State of Idaho. Close cooperation with the State of Idaho would be maintained during the study.

Additional wells would be drilled to enhance the extraction process of the Vapor Vacuum Extraction system. The wells would be drilled on the periphery of waste pits and trenches, avoiding penetration of wastes disposed in the Subsurface Disposal Area, and would not penetrate the 240-foot interbed. Purposes of the holes would be for monitoring volatile organic compounds at shallow depths, supplying air to carry volatile organic compounds to the extraction well, and testing the efficacy of vapor vacuum extraction at various depths. Well drilling and installation would be conducted to avoid cross-contamination or the introduction of contaminated material into the vadose zone.

The majority of the testing and characterizing of the efficacy of vapor vacuum extraction would be done in existing holes. All holes drilled for the test will be left in place and used for monitoring, air supply, and extraction purposes. During the test, engineering controls would be used to prevent the release of contaminated materials to the environment. All activities of the proposed action would take place within the Subsurface Disposal Area, an area already disturbed by past and present disposal activities.

The proposal is not connected [40 CFR 1508.25(a)(1)] to other actions with potential significant impacts, is not related to other proposed actions with cumulative significant impacts [40 CFR 1508.25(a)(2)], and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 of this part. There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. Extraordinary circumstances are unique situations presented by specific proposals, such as scientific controversy about the environmental affects of the proposal; uncertain effects or effects involving unique or unknown risks; or unresolved conflicts concerning alternate uses of available resources within the meaning of section 102(2)(E) of NEPA.

The proposed action would support remedial investigation/feasibility studies under CERCLA, would not unduly limit the choice of reasonable remedial alternatives, and would not cause the uncontrolled movement of hazardous substances, pollutants, contaminants, CERCLA-excluded petroleum or natural gas products, or non-native organisms.

Categorical Exclusion to be Applied:

The Department of Energy published the Final Rule implementing NEA at 10 CFR 1021 (57 FR 15121) on April 24, 1992, under Section D "classes of Categorical Exclusions", including treatability studies that would support remedial investigations/feasibility studies under CERCLA:

B6.2 The siting, construction, and operation of temporary (generally less than 2 years) pilot-scale waste collection and treatment facilities, and pilot-scale (generally less than one acre) waste stabilization and containment facilities (including siting, construction, and operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis) if the action (1) supports remedial investigations/feasibility studies under CERCLA, or similar studies under RCRA, such as RCRA facility investigations/corrective measures studies, or other authorities, and (2) would not unduly limit the choice of reasonable remedial alternatives (by permanently altering substantial site area or by committing large amounts of funds relative to the scope of the remedial alternatives).

This categorical exclusion is the appropriate NEPA documentation because this proposed action is a treatability study. This project would not require construction or major modification of treatment or disposal facilities, would occur in previously disturbed areas, would use the existing vapor vacuum extraction plant already in place, and would have no adverse effects on any environmentally sensitive areas such as historic property, potential habitat of endangered species, etc.

Compliance Action:

I have determined that the proposed action for a Vapor Vacuum Extraction Treatability Study at the SDA of RWMC meets the three eligibility criteria and the category of actions encompassed by the CX referenced above, and would not present any extraordinary circumstances (including consideration

of cumulative impacts) such that the action might have a significant impact upon the human environment. Therefore, I have determined the action may be categorically excluded from further NEPA review and documentation.

Approval: _____

A. A. Pitrolo

Manager, DOE Idaho Field Office

2. Draft Environmental Checklist and Draft Categorical Exclusion for OCVZ VVE Treatability Study

ENVIRONMENTAL CHECKLIST
U.S. DEPARTMENT OF ENERGY - IDAHO FIELD OFFICE

PROJECT TITLE:
Soil Vacuum Extraction Treatability Study at RWMC

PROJECT NUMBER: RWMC-91-002

PERFORMING ORGANIZATION:
EG&G Idaho ER Department

CURRENT DATE: May 1, 1992

DOE PROJECT TECHNICAL MANAGER:

TELEPHONE NUMBER: 526-2747

G. E. Matthern *G. E. Matthern*

PERFORMING ORGANIZATION CONTACT:
K. B. Schuster

TELEPHONE NUMBER: 526-2555

A. BRIEF PROJECT DESCRIPTION:

See Attachment A

(Continuation in Comments or on attachment)

B. SOURCES OF IMPACTS: DOES THE PROJECT/ACTIVITY HAVE THE POSSIBILITY OF INVOLVING, GENERATING, OR RESULTING IN CHANGES TO ANY OF THE FOLLOWING?

	YES	NO	EXPLANATION
1. AIR POLLUTANTS	<u>X</u>		
2. LIQUID EFFLUENTS		<u>X</u>	
3. SOLID WASTE		<u>X</u>	
4. RADIOACTIVE WASTE		<u>X</u>	
HAZARDOUS WASTE	<u>X</u>		
MIXED WASTE		<u>X</u>	
CHEMICAL STORAGE/USE		<u>X</u>	
8. PETROLEUM PRODUCTS		<u>X</u>	<u>See Attachment B</u>
STORAGE			
9. ASBESTOS WASTE		<u>X</u>	
10. WATER USE/DIVERSION		<u>X</u>	
11. SEWAGE SYSTEM		<u>X</u>	
12. CLEARING/EXCAVATION		<u>X</u>	
13. CONSTRUCTION/RENOV.		<u>X</u>	
14. EXCESS NOISE LEVELS		<u>X</u>	
15. PESTICIDE USE		<u>X</u>	
16. RADIATION EXPOSURE		<u>X</u>	

C. CATEGORY EVALUATION CRITERIA

1. Will this action contribute to a cumulative impact with on-going activities?	YES	NO <u>X</u>
2. Is this action related to a proposed action with potentially significant impacts?	YES	NO <u>X</u>
3. Will the project create uncertain, unique, or unknown risks?	YES	NO <u>X</u>
4. Will the project require siting, construction, or expansion of a waste facility?	YES	NO <u>X</u>
5. Will the project impact a RCRA-regulated unit or facility?	YES <u>X</u>	NO
6. Will the project adversely affect any environmentally sensitive areas? (See reverse)	YES	NO <u>X</u>
7. Will the project threaten or violate any statute, regulation, or DOE Order?	YES	NO <u>X</u>
8. Will the project require any federal, state, or local permits, approvals, etc.?	YES	NO <u>X</u>
9. Has this action/area been previously assessed under NEPA?	YES <u>X</u>	NO
10. Will the action take place in an area of previous or on-going disturbance?	YES <u>X</u>	NO

D. DOE CONTRACTOR NEPA CATEGORY RECOMMENDATION: X CX EA EIS NOT COVERED IN SECTION D

REFERENCES: 10 CFR 1021, Department of Energy, National Environmental Policy Act: Implementing Procedures and Guidelines Revocation; Final Rule and Notice; Support D - Typical Classes of Actions, Appendix B, Section 36.2

NAME: William J. Berry

SIGNATURE: William J. Berry

TELEPHONE NO: 525-5541

DATE: 13 May 92

EVALUATION OF ENVIRONMENTALLY SENSITIVE AREAS

RESOURCE CONCERN	AFFECTED		COMMENT
	YES	NO	
TERRESTRIAL			
Threatened/Endangered Wildlife	_____	<u>X</u>	_____
Threatened/Endangered Plants	_____	<u>X</u>	_____
Wildlife/Vegetation	_____	<u>X</u>	_____
Soils/Erosion	_____	<u>X</u>	_____
Cultural/Historical	_____	<u>X</u>	_____
Wilderness/Scenic Areas	_____	<u>X</u>	_____
Prime/Unique Farmland	_____	<u>X</u>	_____
WATER RESOURCES			
Wild/Scenic Rivers	_____	<u>X</u>	_____
Lakes/Floodplains/Wetlands	_____	<u>X</u>	_____
Domestic/Groundwater	_____	<u>X</u>	_____
T & E Fish	_____	<u>X</u>	_____
AIR RESOURCES/QUALITY	_____	<u>X</u>	<u>The need for a permit-to-construct will be investigated</u>
HUMAN HEALTH/SAFETY	_____	<u>X</u>	_____
Socioeconomic Concerns	_____	<u>X</u>	_____

COMMENTS: Previous tests for the Vapor Vacuum Extraction Project from November 3 to November 14, 1989, and for four months from April 14 to August 13, 1990, indicated that no radionuclides were removed from the vadose zone, and no volatile organic compounds were released to the atmosphere above regulatory concern. All releases of volatile organic compounds were below regulatory concern. However, the need for a Permit-to-Construct is being pursued for determining if a permit would be needed for the treatability study.

Previous extraction tests were conducted using a Memorandum-to-File as the environmental review. Those tests were granted an exemption from the need for a Permit-to-Construct from the State of Idaho.

RCRA regulated site is located adjacent to the CERCLA site. RCRA regulations also are applicable or or relevant and appropriate requirements.

ATTACHMENT A
VAPOR VACUUM EXTRACTION TREATABILITY TEST
ENVIRONMENTAL CHECKLIST

BRIEF PROJECT/ACTIVITY DESCRIPTION

The proposed action is a treatability study under the auspices of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The proposed action would be in accordance with the requirements of the Federal Facility Agreement and Consent Order (FFA/CO) and Action Plan, which guides INEL Assessment and Cleanup activities under CERCLA.

The proposed action is to restart the Vapor Vacuum Extraction unit. The purpose of the restart would be to further test and refine the technology for applicability as a potential remediation for the Vadose Zone underlying the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory. The Vapor Vacuum Extraction System was tested for two weeks between November 3 and November 14, 1989, and for eighteen weeks from April 14 to August 13, 1990, to test the system design. Results from the two tests showed that the system was effective in removing volatile organic compounds from the Vadose Zone. Radionuclides were not released to the atmosphere, nor were volatile organic compounds released in excess of regulatory limits.

The proposed treatability study would include measuring horizontal transport time of injected tracer gases for determining the radius of influence of the vacuum applied, evaluating effects of seasonal weather, determining the flow profile within the Vadose Zone, measuring extraction rates from soil gas surrounding the contaminant source, and varying the rates of extraction. Tracer gases used for the tests would not be hazardous; hazardous gases would not be used in the study. Data would be used for refining the computer model depicting the dispersion of the contaminant plume, then using the computer model for testing the potential for Vapor Vacuum Extraction in remediation. Methods of enhancing extraction of vapors, (e.g., heating the subsurface, enhancing air movement in the subsurface, and so forth) may also be studied. Permits for treatability studies will not be required from the Environmental Protection Agency or State governments [40 CFR 300.400 (e)]. However, close cooperation with the State of Idaho would be maintained during the study.

Additional wells would be drilled to enhance the extraction process of the Vapor Vacuum Extraction system. The wells would be drilled on the periphery of waste pits and trenches, avoiding penetration of wastes disposed in the Subsurface Disposal Area, and would not penetrate the 240-foot interbed. Purposes of the holes would be for monitoring volatile organic compounds at shallow depths, supplying air to carry volatile organic compounds to the extraction well, and testing the efficacy of vapor vacuum extraction at various depths. Well drilling and installation would be conducted to avoid cross-contamination or the introduction of contaminated material into the vadose zone.

The majority of the testing and characterizing of the efficacy of vapor vacuum extraction would be done in existing holes. All holes drilled for the test will be left in place and used for monitoring, air supply, and extraction purposes.

During the test, engineering controls would be used to prevent the release of contaminated materials to the environment. All activities of the proposed action would take place within the Subsurface Disposal Area, an area already disturbed by past and present disposal activities. The proposed action is not connected to other actions with potential significant impacts, is not related to other proposed actions with cumulative significant impacts, and is not precluded by 40 CFR 1506.1, Council on Environmental Quality Regulations. The proposed action would support remedial investigation/feasibility studies under CERCLA, would not unduly limit the choice of reasonable remedial alternatives, and would not cause the uncontrolled movement of hazardous substances, pollutants, contaminants, CERCLA-excluded petroleum or natural gas products, or non-native organisms.

ATTACHMENT B
VAPOR VACUUM EXTRACTION TREATABILITY TEST
ENVIRONMENTAL CHECKLIST

B. ENVIRONMENTAL CONCERNS

1. Air Emissions - Under a worst case scenario, if extracted vapors were exhausted directly to the atmosphere, concentrations of contaminants would be below regulatory concern. However, the air extracted by the process would be filtered through a system prefilter, then through a High Efficiency Particulate Air filter, and then through two activated carbon beds. Connected to the carbon beds would be an oxidation unit to destroy the volatile organic compounds extracted from the Vadose Zone, thereby regenerating the carbon beds continuously. If further regeneration would be required, the carbon beds would be regenerated offsite of INEL at a facility permitted by the Environmental Protection Agency. Regenerated filters would be returned for reuse.

Extraction of radionuclides is not anticipated, but if that occurs, the High Efficiency Particulate Air filter is designed to trap those particles. The system would be designed to alarm and automatically shut down should breakthrough of the carbon beds occur and concentrations of carbon tetrachloride exceed regulatory limits. Since no man-made radionuclides or toxic pollutant emissions are anticipated, no permits would be required. However, close cooperation with the State of Idaho and the Environmental Protection Agency will be maintained throughout the proposed treatability study.

5. Hazardous waste - Volatile organic compounds adsorbed onto the carbon filter beds will be handled as a hazardous waste. The carbon beds would be regenerated either on-site or off-site of the INEL. It is anticipated that the oxidation unit will destroy most, if not all, of the volatile organic compounds extracted from the Vadose Zone, thereby reducing costs and minimizing process waste. If the carbon beds require further regeneration, the beds would be regenerated off-site of the INEL at a facility permitted by the Environmental Protection Agency for such treatment and regeneration.

CATEGORICAL EXCLUSION DETERMINATION

PROPOSED ACTION: Vapor Vacuum Extraction Treatability Study

LOCATION: Subsurface Disposal Area (SDA) of the Radioactive Waste Management Complex, INEL

PROPOSED BY: EG&G Idaho, Inc./DOE-ID (EM funded)

DESCRIPTION OF THE PROPOSED ACTION: The proposed action is a treatability study under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and would be in accordance with the requirements of the Federal Facility Agreement and Consent Order (FFA/CO) and Action Plan, which guides INEL Assessment and Cleanup activities under CERCLA.

The proposed action is to restart the Vapor Vacuum Extraction (VVE) unit already in place at the SDA. The purpose is to demonstrate the effectiveness of the vapor vacuum extraction as a remediation alternative for the vadose zone underlying the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory. In the operation of the VVE system, it is anticipated that radionuclides will not be released to the atmosphere, nor will volatile organic compounds be released in excess of regulatory limits.

The treatability study will include evaluating the effects of seasonal weather, determining the flow profile within the vadose zone and evaluating the contaminant flow patterns within the vadose zone, measuring extraction rates from soil gas surrounding the contaminant source, and varying the rates of extraction. Data from the treatability study will be used to determine the viability of the existing VVE system as a long-term cleanup alternative for organic contamination in the vadose zone. Enhancements to the existing VVE system, such as heating the subsurface, enhancing air movement in the subsurface, will also be evaluated. A permit-to-construct or an exemption for treatability studies will be applied for from the state of Idaho.


Additional wells may be drilled to enhance the extraction process of the Vapor Vacuum Extraction system. The wells will be drilled on the periphery of waste pits and trenches, and will not penetrate the 240-foot interbed. New wells will provide additional monitoring of volatile organic compounds at shallow depths, supplying air to move volatile organic compounds to the extraction well, and testing vapor vacuum extraction at various depths. Well drilling and installation would avoid cross-contamination or the introduction of contaminated material into the vadose zone.

The majority of the testing and characterizing of vapor vacuum extraction will be done in existing holes. All holes drilled for the test will be left in place and used for monitoring, air supply, and extraction. During the test, engineering controls will be used to prevent the release of contaminated materials to the environment. All activities of the proposed action will take place within the Subsurface Disposal Area, an area already disturbed by past and present disposal activities.

CX TO BE APPLIED. 10 CFR 1021 Rule, Appendix B to Subpart D, CX B6.2, "The siting, construction, and operation of temporary (generally less than 2 years) pilot-scale waste collection and treatment facilities, and pilot-scale (generally less than one acre) waste stabilization and containment facilities (including siting, construction, and operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis) if the action: (1) supports remedial investigation/feasibility studies under CERCLA, or similar studies under RCRA, such as RCRA facility investigation/corrective measures studies, or other authorities, and (2) would not unduly limit the choice of reasonable remedial alternatives (by permanently altering substantial site area or by committing large amounts of funds relative to the scope of the remedial alternatives)."

I have determined that the proposed action meets the requirements for the CX referenced above. Therefore, I have determined the action may be categorically excluded from further NEPA review and documentation.

Approval: 

A. A. Pitrolo, Manager
DOE Idaho Field Office 

3. Integration Plan

Attachment I

Integration Plan for the National Environmental Policy Act and the Comprehensive Environmental Response, Compensation, and Liability Act for the Organic Contamination in the Vadose Zone Operable Unit (OU 7-08) Remedial Investigation/Feasibility Study

A-1. INTRODUCTION

U.S. Department of Energy (DOE) Order 5400.4, Section 7.d, provides DOE policy for integrating the requirements of both the National Environmental Policy Act (NEPA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial investigation/feasibility study (RI/FS) process. The integration will be accomplished by conducting planning and review procedures for NEPA and CERCLA concurrently in order to avoid duplicative effort and, hence, less commitment of limited resources; avoid conflicts in analysis and choice of a final remediation alternative; and minimize the risk of delaying remedial actions on procedural grounds.

The Organic Contamination in the Vadose Zone (OCVZ) RI/FS at the Radioactive Waste Management Complex (RWMC) relies extensively on CERCLA guidance with supplementation for NEPA documentation requirements. This supplementation includes, but is not limited to, public participation through a scoping process initiated through the publication of a notice of intent within the *Federal Register*, and an RI/FS defining and characterizing potential environmental concerns, remediation alternatives, preferred remediation alternative, and analysis of environmental concerns. Substantive requirements of an action description memorandum NEPA document are fulfilled by this plan and supported by the work plan. The proposed plan will meet the requirements of an environmental assessment for the RI/FS activities.

A-2. RECORD OF ENVIRONMENTAL CONSIDERATION

A-2.1 Purpose and Need

This record of environmental consideration examines the principle elements of the RI/FS for vapor vacuum extraction (VVE) of organic contamination in the vadose zone at the Subsurface Disposal Area (SDA) within the RWMC Waste Area Group (WAG) 7, Operable Unit 7-08, at the Idaho National Engineering Laboratory (INEL). The purpose of the activity is to determine the nature and extent of contamination by volatile organic compounds in the vadose zone beneath the RWMC, to assess the risk posed by the contamination, and to evaluate VVE as the preferred alternative for remediation at the SDA.

In 1986, the Department of Energy Idaho Field Office (DOE-ID), Region X of the Environmental Protection Agency (EPA), and the local office of the United States Geological Survey (USGS) entered into a Consent Order and Compliance Agreement (COCA) that addressed hazardous waste units at the INEL, including the RWMC. Organic chemicals were first detected in the groundwater in the vicinity of the RWMC in September 1987 as the result of sampling by the USGS. The Snake River Plain Aquifer is located approximately 600 ft below the surface of the SDA. Carbon tetrachloride was the only detected compound that exceeded the EPA drinking water standards. Organic vapors in the vadose zone were later detected during well drilling operations in the SDA. Analysis of vapors from the drilling showed the presence of carbon tetrachloride, chloroform, tetrachloroethylene, trichloroethylene, and 1,1,1-trichloroethane. A soil-gas survey conducted in 1987 confirmed that certain SDA disposal pits were sources of organic vapors, with concentrations of volatile organic compounds as high as 2,300 ppm in the soil gas at 2.5 ft below the surface.

DOE conducted two onsite field tests to assess the remediation effectiveness of the VVE process. A critical activity during those tests was to determine if manmade radionuclides were present in the extraction stream. Analysis indicated that there were no detectable concentrations of manmade radionuclides present. A 4-month test of the VVE system captured an estimated 429 Kg of carbon tetrachloride and 163 Kg of trichloroethylene during 2,090 hours of operation. Hence, VVE is considered a viable remedial technology for removal of volatile organic compounds from the vadose zone beneath the RWMC.

Target dates are listed below for delivery of the key documents to EPA and the State of Idaho for the OCVZ RI/FS:

Draft final scope of work	January 15, 1992
Draft RI/FS work plan	January 2, 1992

RI/baseline risk assessment	December 17, 1992
Draft RI/FS report	July 6, 1993
Draft proposed plan	September 29, 1993
Draft record of decision	March 8, 1994
Final record of decision accepted	June 29, 1994

Risks associated with potential releases of volatile organic compounds will be assessed in the RI/FS process, specifically in the RI/baseline risk assessment report. Per the INEL NEPA/CERCLA strategy, the requirements for NEPA documentation will be integrated into the RI/FS being conducted for SDA VVE.

A-2.2 Description of the Proposed Action

The proposed action would be conducted at the SDA in the RWMC. The SDA is an 88-acre site located in the western section of the RWMC at 113°2'30" W longitude and 43°30' N latitude in Butte County, Idaho. It is a shallow-land, subsurface disposal site dedicated to the permanent disposal of solid, low-level, beta-gamma waste. The site for the proposed activities has been previously disturbed and does not contain any sensitive environmental areas.

Disposal records show that approximately 88,400 gal of organic waste from the DOE Rocky Flats Plant were disposed at the SDA from 1966 to 1971. The organic waste included 24,000 gal of carbon tetrachloride and 25,000 gal of other volatile chlorinated hydrocarbons (e.g., tetrachloroethylene, trichloroethylene, and 1,1,1-trichloroethane). Those solvents were first adsorbed in calcium silicate, placed in 55-gal drums, and buried at the SDA at an average depth of 8 ft.

There are three remedial alternatives available for consideration in this action:

1. *In Situ Treatment*

Includes methods for chemical, biological, or physical manipulations which degrade, remove, or immobilize contaminants in place. One candidate technology for this alternative is VVE, which would be explored through a treatability study conducted during the remedial design/remedial action phase of the CERCLA process. This would involve using an existing extraction well at the RWMC, perhaps drilling some more wells, and applying a vacuum to the wells. This process would draw the hazardous chemical vapors from the soil and rock beneath the RWMC, run the vacuum vapors through high efficiency particulate filters and carbon filters to remove any contaminants in the vacuum vapor

stream, and discharge the filtered vacuum air to the atmosphere. The volatile organic compounds would be entrapped in the carbon bed adsorber and treated.

A test-scale vve system was operated at the RWMC in 1989 and 1990. During a two-week test, 8.9 million ft³ of soil gas was removed from the vadose zone. During a 4-month test, 65 million ft³ of vadose zone gas was removed. The combined test periods resulted in the removal of 505 Kg of carbon tetrachloride and 193 Kg of trichloroethylene from the vadose zone.

2. *Excavation, Treatment, and Disposal*

Includes removal of the contaminated subsurface (matrix and contaminant), treatment, and disposal. Treatment might include thermal or chemical processing to remove the hazardous components of the matrix material. Excavation would involve removing a very large amount of rock beneath the complex and is assumed to be impractical and dangerous.

3. *No Action*

This alternative involves maintaining administrative controls without taking any direct action to treat, stabilize, or remove the contaminants.

Estimated project costs for the range of alternatives listed above are being worked. A rough order of magnitude estimate has been developed that ranges from a low of approximately \$2 million for the no-action decision (essentially the cost of the RI/FS process) to a high of \$100 million for the full removal, treatment, and disposal of SDA wastes.

The planned pre-record of decision treatability study and any additional post-record of decision treatability studies considered would be developed and evaluated both individually and comparatively against the following nine EPA criteria and environmental impact analysis:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, and volume of contaminants
- Short-term effectiveness

- Implementability
- Cost
- Acceptability of each alternative to the support agencies (EPA and State)
- Acceptability of each alternative to the public.

The no-action alternative will also be developed and serve as a baseline against which to compare the action alternatives.

It is anticipated that the outcome of the risk-based CERCLA investigation will not recommend the no-action alternative. The pathways of primary concern are releases to the groundwater and air.

A-2.3 Location of Proposed Action

The proposed action would occur within the confines of the RWMC perimeter fence. The RWMC is located at 113°2'30"W longitude, 43°30'N latitude, and occupies 144 acres of Butte County in the southwestern quadrant of the INEL. Permit livestock grazing areas are located approximately 2.5 mi south and 3.6 mi east and west of the RWMC. The RWMC lies in a somewhat flat topographic depression circumscribed by basaltic and lava ridges. The Big Lost River is situated 2 mi northwest of the RWMC at its nearest point. Earth-filled embankments have been constructed to divert local surface water away from INEL facilities during infrequent periods of high flow in the river channel.

Berry and Petty (1990) describe environmental characterization studies and summarize baseline environmental conditions at the RWMC.

A-2.4 Relationship with Other Actions

Several existing and planned NEPA documents address waste management activities or remedial activities at the RWMC. Other projects at the RWMC being addressed by NEPA include the Transuranic Storage Area Retrieval and Storage project, the Pit 9 Comprehensive Demonstration, Pad A, and various sampling activities for site characterization that are working under the Categorical Exclusion for Characterization of the RWMC, Waste Area

Group 7, INEL: NEPA # 6332, October 1, 1991. Most other actions proposed for the RWMC are arguably not related to the VVE remedial action. Cumulative environmental impacts would be evaluated in subsequent NEPA documentation for future remedial actions at the RWMC.

CERCLA activities conducted at the INEL are to be integrated with NEPA. Plans have been developed for integrating requirements of CERCLA and NEPA for remedial actions being planned at the INEL. It is the intent of the DOE-ID strategy to implement CERCLA at the INEL, as described in the federal facilities agreement and associated action plan, and integrate NEPA and CERCLA processes and documents to meet the requirements of both acts. Per the INEL NEPA/CERCLA strategy, the requirements for NEPA documentation will be integrated into the RI/FS being conducted for VVE.

NEPA documentation is proposed for this discrete portion of the planned overall INEL environmental restoration actions in accordance with the DOE and Council on Environmental Quality NEPA regulations. Overall, cumulative impacts of this and other INEL actions (e.g., Transuranic Storage Area) will be evaluated in the INEL Site-wide environmental impact statement scheduled for completion by the end of FY 1995. A record of decision is scheduled for signature by the end of the calendar year 1995.

A-2.5 Potential Environmental Issues

A-2.5.1 General

There is a potential impact to existing treatment, storage and disposal facilities, depending on the remedial alternatives selected for SDA.

Decisionmakers need to know what environmental impacts, if any, may be associated with the actual operations proposed at SDA (retrieval, storage, treatability study and disposal process development, and final treatment and disposal of SDA wastes), and what needs to be done to avoid any significant impacts to the human and natural environment.

A-2.5.2 Impacts to Human and Natural Environment

Depending on the remedial alternative selected for SDA, small radiation doses to workers could be anticipated. The doses would be kept as low as reasonably achievable and would not exceed applicable DOE standards (DOE Order 5480.11). Exposure to hazardous substances will be minimized.

The remediation of SDA wastes is not anticipated to influence floodplains or wetlands; threatened or endangered species; archaeological or cultural resources; prime, unique, or important farmlands; nonattainment areas for ambient air quality; Eastern Snake River Plain sole source aquifer; navigable waterways; wilderness areas; the national trail system; or navigable air space. Remediation would occur in an area that was previously disturbed.

A-2.5.3 Liquid Waste Management

Liquid wastes are not expected to be generated. The SDA inventory does not contain any free liquid waste stream sources because the volatile organic compounds were adsorbed in calcium silicate. Should any occurrence of liquids result and found to be RCRA wastes, they would be handled according to RCRA requirements for a RCRA waste stream. There are no plans for routine radioactive or hazardous liquid waste streams from the SDA OCVZ facility.

A-2.5.4 Atmospheric Emissions

The area around the INEL is a Prevention of Significant Deterioration unclassified attainment area. Craters of the Moon National Monument, located 19 mi southwest of the INEL, is considered a Prevention of Significant Deterioration Class I Area for purposes of ambient air quality degradation.

There is a need to characterize and document expected air emissions from the proposed remedial action and to verify compliance with State air emission requirements. Based on existing information, no National Ambient Air Quality Standards are expected to be exceeded during remedial activities. However, a prevention of significant deterioration type of review is currently required by the State of Idaho for any radiological release. Other toxic materials that might be released would also require resolution at the State level.

Radionuclides are one of the pollutants of concern in the National Emission Standards for Hazardous Air Pollutants. As such, a radionuclide National Emission Standards for Hazardous Air Pollutants permit application would be required by EPA if the expected releases exceed the regulatory concern threshold of 0.1 mR/h effective dose equivalent to a member of the general public.

Precautions to protect air resources would be inherent in the design of OCVZ remediation facility. Precautions could include negative pressure maintained by a ventilation system exhausting through filtration systems.

A-2.5.5 Transportation of Wastes

Transportation of wastes associated with this action are expected to be limited to facilities within the INEL boundary.

A-2.6 References

- Berry, W. J. and J. S. Petty, 1990, *Summary of Available Baseline Information for the Radioactive Waste Management Complex at the Idaho National Engineering Laboratory*, EGG-WM-9063.
- Hubbell, J. M., L. C. Hull, T. G. Humphrey, B. F. Russell, J. R. Pittman, and P. R. Fischer, 1987, *Annual Progress Report: FY-1986; Subsurface Investigation Program at the Radioactive Waste Management Complex of the Idaho National Engineering Laboratory, Idaho*, DOE/ID-10153.
- Laney, P. T., S. C. Minkin, R. G. Baca, D. L. McElroy, J. M. Hubbell, L. C. Hull, B. F. Russell, G. J. Stormberg, and J. T. Pittman, 1988, *Annual Progress Report: FY-1987; Subsurface Investigation Program at the Radioactive Waste Management Complex of the Idaho National Engineering Laboratory, Idaho*, DOE/ID-10183.
- Mann, L. J. and L. L. Knobel, 1987, *Purgeable Organic Compounds in Groundwater at the Idaho National Engineering Laboratory, Idaho*, USGS Open-File Report 87-766, DOE/ID-22074.

A-2.7 Environmental Assessment Determination

Name of project: Remediation of SDA Organic Contamination in the Vadose Zone Remedial Investigation/Feasibility Study Operable Unit 7-08

Location: Radioactive Waste Management Complex, Idaho National Engineering Laboratory

Description of the proposed action:

The purpose of this action is to remediate volatile organic wastes and contaminated soil on SDA. The proposed action could include onsite retrieval, repackaging, storage, treatability study and disposal process development, in situ treatment, and final disposal of captured volatile organic wastes removed from SDA. Engineering controls would be used to prevent the release of contaminated materials to the environment.

Record of environmental consideration attached: ☒ yes ☐ no

Class of action to be applied (from Section D, DOE NEPA Guidelines):

The proposed action is not covered under Section D of the guidelines or Section D of the proposed rules of the Department of Energy. Information provided in the REC does not indicate any potential impacts to the human and natural environment. It is concluded that an environmental assessment be prepared.

I have determined that the proposed action is within the class of actions normally requiring an environmental assessment (EA) but not necessarily requiring an environmental impact statement (EIS), as listed in the above referenced class of actions defined in Section D of the DOE NEPA guidelines. Therefore, I have determined that an EA may be prepared to assess the impacts of the proposed action. Based on the analysis in the EA, DOE will either prepare a finding of no significant impact and proceed with the action, or will prepare an EIS if the EA reveals the potential for significant environmental impacts.

Signature: _____

Title: _____

Date: ____/____/____

EH-25 has reviewed this determination and has no objection.

Signature: _____

Date: ____/____/____

**Attachment II
Community Relations
Plan**

Attachment II

**Draft Community Relations Plan
for the Organic Contamination
in the Vadose Zone Operable Unit (OU 7-08)
for the Focused Remedial Investigation/Feasibility Study
Work Plan**

Attachment II

Draft Community Relations Plan for the Organic Contamination in the Vadose Zone Operable Unit (OU 7-08) for the Focused Remedial Investigation/Feasibility Study Work Plan

1. OVERVIEW OF COMMUNITY RELATIONS PLAN

1.1 Introduction

The Idaho National Engineering Laboratory (INEL) has been designated as a Superfund site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). With this designation comes the responsibility to (a) investigate areas suspected of being contaminated in the past, (b) identify alternative solutions for cleanup, (c) involve the public in each step of the investigation and decisionmaking process and obtain consent from State and Federal regulators, and (d) follow up with the best course of action for environmental restoration.

1.2 Community Relations Plan

This community relations plan (CRP) has been taken from the interim plan developed by the Department of Energy Idaho Field Office (DOE-ID) in March 1991. This plan has been written specifically for the Organic Contamination in the Vadose Zone (OCVZ) Focused Remedial Investigation/Feasibility Study (RI/FS). The modified plan will be used to establish a process to help DOE-ID communicate information to the public and to help the public communicate concerns back to DOE-ID. This effort will inform and involve interested citizens, public officials, agencies, groups, and organizations in the State of Idaho on the OCVZ focused RI/FS.

1.3 Objectives

The OCVZ CRP has specific objectives for accomplishing the remedial investigations at the operable unit. They are to:

- Comply with legal requirements of CERCLA and the National Environmental Policy Act (NEPA)
- Provide the public with accurate and understandable information throughout the process of completing the focused RI/FS for cleanup work at the OCVZ Operable Unit

- Establish two-way communication with the public to achieve community involvement
- Provide opportunity for the public to become involved in key decisions regarding the focused RI/FS and related cleanup work
- Address concerns expressed by the community during interviews and public meetings.

Since the CRP is intended to be a working document, it can be amended to provide additional community relations activities as needed.

1.4 Agency Contacts

A current list of officials from the DOE-ID Environmental Restoration Division, INEL Community Relations Plan Office, INEL Public Affairs Office, the EPA Region 10, and the Idaho Division of Environmental Quality is shown in Appendix A. Representing various offices and agencies, these individuals have a common interest in the activities described in this plan, which is to ensure public involvement in the completion of the focused RI/FS for the OCVZ Operable Unit.

Inquiries or comments concerning any aspect of the focused or the content of this plan can be directed to:

Environmental Restoration Division
DOE Idaho Field Office
785 DOE Place
Idaho Falls, ID 83402

Additional questions, comments, or requests for information can be directed to the Federal and State regulatory agency contacts listed in Appendix A.

2. SITE OVERVIEW

2.1 Site Description

The INEL is located in southeastern Idaho near the center of the eastern portion of the Snake River Plain. The INEL encompasses 890 mi² of semi-arid land near the Lemhi and Lost River mountain ranges. The nearest city with a large population center is Idaho Falls, located about 30 mi to the east. INEL employment at the present time is about 11,000 persons. Most employees live in Idaho Falls. Others live in the surrounding areas of Pocatello, Blackfoot, Rexburg, Arco, and other nearby towns.

The OCVZ Operable Unit is located in the southwest section of the INEL. A more detailed description of the operable unit area is found in the RI/FS work plan.

The Eastern Snake River Plain is an area of complex geologic structure and history. Studies show basaltic lava flows to a depth of at least 2,440 ft. The flows are interbedded with cinders, silt, sand, and clay. The basalt has high permeability resulting from fractures and joints. Age-dating techniques estimate the youngest basalt at INEL to be between 45,000 and 145,000 years old.

2.2 Historical Sketch

2.2.1 Management of INEL

INEL is managed by DOE-ID. The mission of DOE-ID is to provide the engineering disciplines necessary to support nuclear safety; reactor development, operations, and training; spent nuclear fuel materials processing; waste management and technology development; environmental remediation; energy technology; and conservation programs.

Over the years, a number of private firms have provided specific support services for DOE-ID. At the present time, the operating INEL contractors are EG&G Idaho, Inc.; Babcock & Wilcox Idaho, Inc.; Westinghouse Electric Corporation; Westinghouse Idaho Nuclear Company; MK-Ferguson of Idaho; Argonne National Laboratory-West; and Protection Technology of Idaho, Inc.

2.2.2 Historical and Current Projects at OCVZ Operable Unit

During the 1960s and early 1970s, prior to the passage of strict hazardous waste laws, barreled mixed wastes containing volatile organic compounds (adsorbed in substances similar to kitty litter) and radioactive wastes were buried at the Subsurface Disposal Area of the Radioactive Waste Management Complex (RWMC). Much of this waste was disposed in Pits 4, 5, 6, 9, and 10. In time, the barrels deteriorated, the organics evaporated from the substances in which they were absorbed, and the barrels began to leak. This released volatile organic compounds to the vadose zone. In 1962, 1969, and 1982, local area snowmelt caused flooding at the Subsurface Disposal Area. Dikes have since been constructed around the perimeter of the RWMC to prevent future flooding. INEL

scientists believe, however, that this historic flooding accelerated the transport of volatile organic compounds to the aquifer immediately below the facility. This migration resulted in contaminant concentrations in groundwater detected below monitoring wells adjacent to the complex. Currently, this contamination is below drinking water standards.

2.3 Environmental Investigations

Since 1971, the U.S. Geological Survey (USGS) and DOE-ID have drilled over 75 wells in and near the RWMC. The purpose of the drilling has been to study the characteristics of the geology and hydrology and the extent of contamination in the vicinity of the disposal area. Although the results of these early studies were inconclusive, recent studies indicate concentrations of organic compounds are present in groundwater monitoring wells at the RWMC. These studies suggest that organic vapors have moved downward through the subsurface and formed a vapor plume.

A focused RI/FS will be conducted to evaluate organic contaminants in the vadose zone. It will meet the guidelines of the CERCLA and the NEPA. This study will improve the understanding of the nature and extent of contamination of the vadose zone by the organic compounds. In doing so, the study will provide sufficient information to make an informed decision on the best remedial alternative for the vadose zone contamination.

To evaluate potential risks posed by the contaminated vadose zone, DOE-ID conducted a preliminary health and environmental risk assessment in 1991. A risk assessment typically evaluates risk by studying the nature and extent of contamination, its relationship to population patterns and the environment, and known effects of contaminants. Groundwater is believed to be the main way volatile organic compounds could reach humans. Of concern are volatile organic compounds such as carbon tetrachloride, trichloroethylene, tetrachloroethylene, chloroform, 1,1-dichloroethylene, 1,1,2,2-tetrachloroethane, and 1,2-dichloropropane. These chemicals, commonly used as degreasers and solvents, have been found in the vadose zone and in the aquifer below the complex. The study indicated that groundwater concentrations of carbon tetrachloride at 500 to 1,550 ft downgradient from the Subsurface Disposal Area would be greatest in about 20 years. A baseline risk assessment will be conducted to determine if the VOCs in the vadose zone pose a risk to human health or the environment. A remedial alternative will be selected based on the results of the RI/FS.

Three remedial alternatives; no action and two potential cleanup methods, are discussed below.

1. *In situ*

Under this alternative, the risk posed by VOCs would be reduced to an acceptable level without removing the contaminated soil rock. One potential technology for this alternative that will be evaluated is vapor vacuum extraction (VVE). This would involve using an existing extraction well at the RWMC, perhaps drilling some more wells, and applying a vacuum to the wells. The VVE process, would draw the hazardous chemical vapors from the soil and rock beneath the RWMC, run gases through carbon filters and

high efficiency particulate filters to remove any contaminants in the gas stream, and discharge the filtered gas to the atmosphere.

A test-scale vapor vacuum extraction system was operated at the RWMC in 1989 and 1990. During a two-week test, 8.9 million ft³ of vadose zone gas were removed. During a four-month test, 65 million ft³ of vadose zone gas were removed. The combined test periods resulted in the removal of 505 kg of carbon tetrachloride and 193 kg of trichloroethylene from the vadose zone.

2. *Excavation*

Under this process, contaminated soil and rock would be removed. Excavation would involve removing a very large amount of rock beneath the complex and is assumed to be impractical and dangerous.

3. *No Action*

This alternative involves maintaining administrative controls without taking any direct action to treat, stabilize, or remove the contaminants.

3. REGULATORY OVERVIEW

3.1 National Priorities Listing and Federal Facility Agreement

Based on the detection of contaminants in the environment at OCVZ Operable Unit and other INEL sites, the INEL was added to the EPA's National Priorities List (NPL) on November 15, 1989, under the CERCLA, 42 USC 9601 et seq., also known as the Superfund. The NPL identifies sites of high priority for investigation and cleanup of hazardous materials.

A second Federal law, the Resource Conservation and Recovery Act (RCRA), 42 USC 6901 et seq. RCRA is a law that regulates the generation, transportation, treatment, storage, and disposal of hazardous wastes; it is administered by the State of Idaho under authority of the Idaho Hazardous Waste Management Act (HWMA).

Since the INEL is a Federal facility, CERCLA requires the DOE, as the managing agency, to enter into an agreement with EPA to coordinate the cleanup effort. To avoid potential conflict between CERCLA and RCRA and overlapping jurisdictions by different agencies, a Federal Facility Agreement between DOE-ID, EPA Region 10, and the State of Idaho has been negotiated.

This agreement outlines the remedial action process that encompasses all investigations of hazardous substances and remedial activities at OCVZ and the other INEL sites. The agreement integrates CERCLA response obligations with RCRA and HWMA corrective action obligations. All investigation and cleanup activities will be conducted in accordance with CERCLA regulations implemented under the National Contingency Plan (NCP). The NCP amends existing provisions and adds new major authorities to CERCLA.

3.1.1 Response Actions

CERCLA Section 104 provides broad authority for a Federal program to respond to releases of hazardous substances, pollutants, or contaminants. There are two major types of response actions: the first is removal action and the second is remedial action. A removal action is generally short-term in nature and relates to emergency situations that should not wait for investigations that are lengthy in scope. In comparing the two actions, note that a removal action solves an immediate threat and a remedial action is taken to mitigate a long-term threat. The ultimate objective of the OCVZ focused RI/FS is to select a remedial alternative for the VOC-contaminated vadose zone beneath and adjacent to the SDA.

3.1.2 Waste Area Groups

The INEL is a large installation with a number of operating facilities, each containing a number of potentially hazardous locations. For management purposes, the INEL has been divided into 10 smaller parts called waste area groups (WAGs). WAGs 1 through 9 correspond to operating facilities at the INEL, while WAG 10 corresponds to Site-wide concerns, including the Snake River Plain

Aquifer. WAG 10 also addresses miscellaneous surface and subsurface areas not included in the other nine WAGs. WAG 7 includes all the facilities at the RWMC; the OCVZ Operable Unit is located at the RWMC.

3.1.3 Operable Units

WAG 7 has been broken down into 15 working operable units to focus investigation and cleanup efforts. Each operable unit may contain one or more potentially hazardous areas or solid waste management units. The OCVZ is Operable Unit 8 in WAG-7. Further descriptions of the WAGs and operable units are included in the action plan of the interagency agreement.

3.2 National Environmental Policy Act

As stated previously, all OCVZ investigation and remedial activities will be conducted in accordance with CERCLA regulations, with the provision that the process accommodate the requirements of NEPA. The result will be a series of documents for each remedial action that satisfies both acts. Such a practice is permitted and advocated by 40 CFR 1506.4, which states that "any environmental document in compliance with NEPA may be combined with any other agency document to reduce documentation and paperwork."

Under NEPA, a more formal approach is required to inform the public earlier in the process. Where appropriate, DOE-ID will coordinate public involvement activities prescribed by NEPA, with the public participation requirements of CERCLA. In order to inform the public how compliance with NEPA requirements will be achieved, this community relations plan supplement was prepared.

4. COMMUNITY BACKGROUND

4.1 Community Profile

The DOE took a Statewide approach in implementing the *DOE-ID Community Relations Plan* because activities at INEL affect citizens either environmentally or economically throughout the State. Specific reasons for this approach are the following:

- The Snake River Plain Aquifer and the Snake River are primary sources of water for domestic, agricultural, and industrial purposes. Waste disposal practices at the INEL have impacted water quality in the Snake River Plain Aquifer.
- The INEL is one of the State's largest employers. While the INEL primarily affects the economy of communities in Southeast Idaho, the economic effects are felt Statewide.
- Statewide interest in the INEL has increased during the past few years because of increased sensitivity of the public to environmental issues and public debate over possible new weapons-related defense initiatives at the INEL.
- Idaho's Congressional delegation, the governor, other State officials, and members of the State Legislature are interested in programs and environmental actions at the INEL.

For these reasons, DOE-ID believes that the affected community includes, but is not limited to, concerned citizens throughout the State, local and State officials, environmental and civic groups, educators, businesses, and employees at INEL. This site-specific RI/FS CRP was prepared to supplement the DOE-ID version and to inform the public about the wide range of public involvement opportunities that will be available under the RI/FS.

5. COMMUNITY RELATIONS ACTIVITIES

5.1 CERCLA Requirements for Community Relations

This community relations plan CRP, required under CERCLA, was developed pursuant to the overall CRP prepared by DOE-ID. The plan describes public involvement requirements and public participation activities that will occur during the implementation of the RI/FS. A detailed list of activities and schedule is given in Table 1.

Community relations activities outlined in this plan are intended to meet the following needs:

- Understanding the complexity of environmental restoration issues
- Identifying problems and issues that should be addressed
- Identifying alternative solutions to those problems and issues
- Addressing conflicts and misconceptions
- Pursuing actions and decisions in the best overall interest of the public and environment.

Interested citizens are encouraged to look over Table 1 to find opportunities for involvement such as reading reports, brochures, and fact sheets; attending an informal briefing; visiting the nearest information repository; or sending in written comments or questions.

The following paragraphs add detail to some of the public involvement activities highlighted in Table 1.

1. *Information Repositories.* Information repositories have been established in the public libraries of each of the following Idaho cities: Idaho Falls, Pocatello, Twin Falls, Boise, and Moscow. Appendix B lists the address, days, and hours each repository is open. Additional information repositories may be established if sufficient community interest is expressed.

The following types of documents for the OCVZ RI/FS (and other INEL activities) will be in information repositories:

- Federal facilities agreement and action plan
- Index to the administrative record
- OCVZ focused RI/FS SOW

Table 1. Community relations activities for the OCVZ RI/FS.

Activity	Date
Publish fact sheet on the RI/FS process	11/20/91
Publish notice of scoping meetings	11/20/91
Preliminary scoping meetings	12/90 - 12/91
Place RI/FS SOW in the repositories	07/31/92
Place RI/FS work plan in the repositories	07/31/92
Publish fact sheet on the RI/FS report	11/30/93
Publish notice of availability for the proposed plan	12/06/93
Place RI/FS report in the repositories	12/15/93
Conduct public meetings on the proposed plan	12/21/93 - 01/21/94
Public comment period on the proposed plan	12/21/93 - 01/21/94
Place transcripts of public meetings on proposed plan in the repositories	02/23/94
News release regarding responsiveness summary	10/30/94
Send responsiveness summary to responders and mailing list contacts	10/30/94
Place record of decision (ROD) and responsiveness summary in the repositories	10/30/94

- OCVZ RI/FS and DOE-ID community relations plans
 - OCVZ focused RI/FS work plan
 - Remedial investigation/baseline risk assessment report
 - Treatability study work plan
 - RI/FS report
 - Treatability study final report
 - Proposed plan
 - Record of decision
 - Responsiveness summaries
 - Brochures
 - Press releases
 - Fact sheets
 - Newsletters
 - Reports and documents related to environmental investigations
 - DOE Environmental Restoration and Waste Management Five-Year Plan
 - INEL Environmental Restoration and Waste Management Site-Specific Plan.
2. *Administrative Record.* An administrative record containing all information used in the decisionmaking process for cleanup activities will be available for review and copying at the Woodruff Avenue Complex, 200 South Woodruff Avenue, Idaho Falls. For convenient public access in the future, a branch of the administrative record will be established at the INEL Technical Library at 1776 Science Center Drive in Idaho Falls. Written and oral comments received during public comment periods will become a part of the administrative record. An index to the administrative record will be placed in information repositories and updated regularly.
3. *Public Comment Periods.* A public comment period will be held for the proposed plan prior to the record of decision (see Table 1). The plan will describe remedial alternatives and the preferred alternative for the OCVZ Operable Unit. When the plan

has been completed, a 2-week period of public notice will be announced regarding its availability. At a minimum, this notice will consist of display advertisements in local newspapers describing procedures for submitting comments. Following that, a 30-day comment period will be provided. Comments can be provided in writing or given verbally. The comment period may be extended another 30 days if requested in writing.

Public meetings will be held during the comment period regarding final selection of a cleanup alternative. The number and location of these meetings for comments will be determined at least 2 months before the scheduled start date of the public comment period. Public notification will be provided through news releases and direct mailing of the meeting schedule. Verbal comments received during those meetings and written comments received during the comment period will be given equal consideration by DOE-ID in selecting a cleanup alternative. Transcripts will be prepared from the meetings and made a part of the administrative record and information repositories.

4. *Responsiveness Summary.* Following a public comment period, comments will be compiled, and responses to comments will be documented in a responsiveness summary, which will be part of the ROD. Comments received during the public comment period will be considered in the remedial action decision for the OCVZ focused RI/FS.
5. *Record of Decision.* Following the responsiveness summary and explanation of significant changes to the plan (if any), a ROD specifying the selected remedial alternative will be prepared by DOE. The ROD will be issued following EPA or State of Idaho approval, and will include the summary. If the selected remedy is different from alternatives listed in the RI/FS report and the proposed plan, the differences will be explained in the ROD.

An additional public comment period will be provided if the selected remedial alternative represents a fundamental change from alternatives in the RI/FS report and proposed plan.

5.2 Requests For Additional Activities

This part of the CRP describes the extra public involvement activities in Table 1 in greater detail.

1. *Briefings, Presentations, or Discussions.* Briefings, presentations, or discussions may be conducted with interested individuals, groups, organizations, and agencies. The DOE-ID Environmental Restoration Division and INEL Public Affairs offices may invite and seek group discussions, briefings, meetings, and presentations regarding remedial alternative issues.

2. *Tours.* Interested individuals and groups will be provided tours of facilities at RWMC. For example, some tours may be conducted to visit areas associated with environmental restoration; waste technology demonstration; and waste treatment, storage, and disposal.
3. *Public Involvement Meetings.* Semiannually, or as requested, public involvement meetings will be held in interested communities. Where possible, meetings will be held to inform the public about the focused RI/FS process or to give an update on the status of the focused RI/FS.
4. *Newsletter.* The INEL Environmental Restoration Program will publish the *INEL Reporter* on a quarterly basis. Its purpose is to inform the public about environmental investigation and cleanup activities. The newsletter will be distributed via the mailing list described below.
5. *Brochures.* Nontechnical brochures will be prepared and distributed via the mailing list and through other means to give the public a better understanding of the Snake River Plain Aquifer, facts about radiation, waste management, environmental monitoring, waste units being cleaned up and technology used to complete the work.
6. *Fact Sheets.* Fact sheets will be prepared and distributed via the mailing list to provide summaries of environmental investigations and related technical reports or background information helpful in understanding technical documents.
7. *Press Releases.* Press releases will be prepared and distributed to the news media announcing public meetings and public comment periods, and to publicize the latest developments of the OCVZ focused RI/FS.
8. *Mailing List.* A mailing list will be developed to distribute information to the public and the news media. That list will be developed by adding the names of those interviewed, others expressing an interest in INEL, public officials, and names gathered during the development of other CRP activities. Persons interested in being added to the mailing list can contact DOE-ID/INEL personnel listed in Appendix A.
9. *News Media.* DOE-ID will keep the news media informed of cleanup activities by providing brochures, press releases, newsletters, fact sheets, and final reports. In addition, officials will meet with news media representatives to provide them with accurate information. Reporters will be invited and encouraged to visit the RWMC.
10. *Displays and Exhibits.* The INEL Environmental Restoration Program will utilize public gatherings, meetings, open houses, and other opportunities to set up displays and exhibits covering topics requested by members of the general public. Officials from INEL will be on hand to answer questions and listen to public concerns.

11. *Employee Communications.* The community relations activities described in this plan are available to employees at the INEL as well as the general public. In addition, employees will be kept informed via the *INEL Reporter*, various company newsletters, computer mail systems, and presentations by management.

These activities will be conducted routinely throughout the course of focused RI/FS activities at OCVZ. All comments received from the public concerning ways to improve communication and public participation will be considered when updating this plan.

Appendix A

List of Contacts

Appendix A

List of Contacts

DOE-ID Environmental Restoration Program

Jerry L. Lyle (208) 526-1148
Deputy Assistant Manager
Environmental Restoration
and Waste Management
DOE Idaho Field Office
785 DOE Place
Idaho Falls, ID 83402

Alice Williams (208) 526-0972
Director
Environmental Restoration Division
DOE Idaho Field Office
785 DOE Place
Idaho Falls, ID 83402

INEL Community Relations Plan

Reuel Smith (208) 526-6864
CRP Coordinator
INEL Environmental Restoration Program
785 DOE Place
Idaho Falls, ID 83402

INEL Public Affairs

Christopher Powers (208) 526-9586
Chief of Public Affairs and Tribal Liaison
INEL Public Affairs
785 DOE Place
Idaho Falls, ID 83402

Nick Nichols (208) 526-1693
Media Contact
INEL Public Affairs
785 DOE Place
Idaho Falls, ID 83402

U.S. Environmental Protection Agency

Wayne Pierre (206) 553-7261
Federal Facility Superfund Branch
EPA Region 10, HW-074
1200 Sixth Avenue
Seattle, WA 98101

Mary Jane Nearman (206) 399-6642
Federal Facility Superfund Branch
EPA Region 10, HW-074
1200 Sixth Avenue
Seattle, WA 98101

State of Idaho^a

Dean Nygard (208) 334-5860
Idaho Department of Health and Welfare
Division of Environmental Quality
1410 N. Hilton
Boise, ID 83706

Shawn Rosenberger (208) 525-7300
Idaho Department of Health and Welfare
1920 17th St., Suite #202
Idaho Falls, ID 83404

a. Toll-free calls can be made by calling 1-800-232-INEL.

Appendix B

INEL Information Repositories

Appendix B

INEL Information Repositories

Location, Days, and Hours Open

INEL Technical Library, 1776 Science Center Drive,
Idaho Falls, ID 83415; (208) 526-1185

Hours: 8:00 a.m. - 7:00 p.m. Monday - Thursday
8:00 a.m. - 5:00 p.m. Friday
9:00 a.m. - 1:00 p.m. Saturday

Idaho Falls Public Library, 457 Broadway,
Idaho Falls, ID 83402; (208) 529-1450

Hours: 9:00 a.m. - 9:00 p.m. Monday - Thursday
9:00 a.m. - 5:30 p.m. Friday, Saturday

Twin Falls Public Library, 42nd Street East,
Twin Falls, ID 83301; (208) 733-2964

Hours: 10:00 a.m. - 6:00 p.m. Monday, Friday
10:00 a.m. - 9:00 p.m. Tuesday, Wednesday, Thursday
12:00 p.m. - 5:00 p.m. Saturday

Pocatello Public Library, 812 East Clark,
Pocatello, ID 83201; (208) 232-1263

Hours: 10:00 a.m. - 9:00 p.m. Monday-Thursday
10:00 a.m. - 6:00 p.m. Friday, Saturday

Boise Public Library, 715 South Capitol Blvd.,
Boise, ID 83706; (208) 384-4076

Hours: 10:00 a.m. - 6:00 p.m. Monday, Friday
10:00 a.m. - 9:00 p.m. Tuesday, Wednesday, Thursday
1:00 p.m. - 5:00 p.m. Saturday, Sunday

Moscow-Latah County Library, 110 South Jefferson,
Moscow, ID 83843; (208) 882-3925

Hours: 10:00 a.m. - 9:00 p.m. Monday, Thursday
 10:00 a.m. - 6:00 p.m. Tuesday, Wednesday, Friday
 10:00 a.m. - 5:00 p.m. Saturday

Appendix C

Glossary

Appendix C

Glossary

Argonne National Laboratory-West (ANL-W). INEL facility for testing breeder reactor technology. ANL-W houses Experimental Breeder Reactor II, the first pool-type liquid-metal reactor. The facility has four other reactors and two fuel examination facilities.

Central Facilities Area (CFA). INEL facility serving as headquarters for environmental laboratories, security, fire protection, medical, communications systems, warehouses, cafeteria, vehicle and equipment pools, bus system, and laundry.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Also known as Superfund, the Federal statute enacted in 1980 and reauthorized in 1986 provides the statutory authority for cleanup of hazardous substances that could endanger public health or welfare or the environment.

Community Relations Plan (CRP). A report that assesses and defines a community's informational needs concerning potential hazards posed by conditions at hazardous waste sites. The CRP also encourages and ensures two-way communications between an affected community and the public agency overseeing cleanup.

Experimental Breeder Reactor I (EBR-I). The first nuclear reactor in the world to generate usable amounts of electricity. Today, EBR-I is a National Historic Landmark, open to the general public.

Feasibility Study (FS). The step in the CERCLA process in which alternatives for a remedial action system are investigated and screened.

Idaho Chemical Processing Plant (ICPP). INEL complex housing reprocessing facilities for Government-owned defense and research spent fuels. ICPP facilities include spent fuel storage and reprocessing areas, a waste solidification facility and related waste storage bins, remote analytical laboratories, and a coal-fired steam generating facility.

Interim Action (IA). Any discrete action implemented, prior to a full remedial action, to prevent or minimize the releases of hazardous substances to the environment.

National Priorities List (NPL). The EPA's list of the top priority hazardous waste sites eligible for investigation and cleanup under the Federal Superfund program.

Naval Reactor Facility (NRF). INEL facility housing prototype reactors for U.S. Navy surface ships and submarines. The facility also serves as a training school for officers and crew who operate reactors for the Navy.

Power Burst Facility (PBF). INEL facility for testing nuclear reactor fuels. Currently on standby status, PBF is being considered for use in brain cancer treatments for a program called boron neutron capture therapy.

Preliminary Assessment/Site Inspection. The CERCLA initial process for collecting and reviewing information about a known or suspected hazardous waste site or release to determine if a site needs further study or if a response action is required.

Proposed Plan. A summary of the agency's preferred cleanup strategy, the rationale for the preference, a review of the alternatives presented in the detailed analysis of the RI/FS, and a presentation of any waivers to cleanup standards, if any are proposed.

Radioactive Waste Management Complex (RWMC). INEL facility established in 1952 as a controlled area for disposal of solid radioactive wastes generated in INEL operations. Since 1954, the facility has received defense waste for storage.

Record of Decision (ROD). The CERCLA report documenting the selection of remedial action to be implemented at a site after the RI/FS and Proposed Plan have been completed. The ROD is published in the Federal Register.

Remedial Action (RA). The CERCLA process of remedial action implementation after the investigative steps have been completed, after issuing the record of decision, and after the remedial design has been completed.

Remedial Decision (RD). The CERCLA process of design for the remedial action alternative that was selected in the record of decision.

Remedial Investigation (RI). The CERCLA process that determines the extent of hazardous substance contamination and includes, as appropriate, treatability investigations. The RI is done in conjunction with the feasibility study.

Removal Action. An immediate action taken over the short-term to address a release or threatened release of hazardous substances.

Resources Conservation and Recovery Act (RCRA). A Federal law enacted in 1976 (and amended in 1980 and 1984) that regulates the generation, transportation, treatment, storage, and disposal of hazardous wastes. In this Federal Facilities Agreement, RCRA is defined as being "functionally equivalent" to CERCLA.

Responsiveness Summary. A summary of oral and/or written public comments received during a comment period on key documents and DOE-ID responses to those comments. The responsiveness summary is especially valuable during the decision process at a site because it highlights community concerns about the proposed decisions.

Superfund. The common name used for the CERCLA, also referred to as the trust fund.

Superfund Amendments and Reauthorization Act (SARA). The reauthorization of the CERCLA statute enacted by Congress in October 1986.

Test Reactor Area (TRA). INEL complex housing facilities for studying the effects of radiation on materials, fuels, and equipment.

Transuranic Contaminated Waste. Waste contaminated with long-lived transuranic elements in concentrations within a specified range established by DOE, EPA, and the Nuclear Regulatory Commission. Those are elements shown above uranium on the chemistry periodic table, such as plutonium, americium, and neptunium.

Volatile Organic Compound. Carbon-based chemicals that evaporate readily into the air (e.g., carbon tetrachloride, benzene, toluene, and xylene--all of which are in gasoline).

**Attachment III
Sampling and Analysts
Plan**

78

Attachment III
Sampling and Analysis Plan

NOTE: A copy of EGG-WM-10175, "Sampling and Analysis Plan for the Organic Contamination in the Vadose Zone Operable Unit 7-08 Focused Remedial Investigation/Feasibility Study," Revision 1, Volumes I and II, is available from the Environmental Restoration Department Administrative Record and Document Control Office, EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, ID 83402-3904.